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EXAMINER				
HINZE, LEO T				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/554,302

**Applicant(s)**

HECKENTHALER ET AL.

**Examiner**

LEO T. HINZE

**Art Unit**

2854

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 May 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 25 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-85/86)  
Paper No(s)/Mail Date 20051025  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because where only a single view is used in an application to illustrate the claimed invention, it must not be numbered and the abbreviation "FIG. " must not appear. See 37 C.F.R. § 1.84(u)(1) Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

2. Claims 1-13 are objected to because of the following informalities:
- a. Regarding claim 1, it appears that "work piece surface to be printed" in line 10 should be "stamping surface". This correction would fix an apparent inconsistency with claims 5 and 6 which recite heating the work piece surface to temperatures inconsistent with the range recited in claim 1. To expedite prosecution, the examiner will read "work piece surface to be printed" in line 10 to be "stamping surface".

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order

for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 2, 5-8, 10-14, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leyland et al., US 4,893,555 A (hereinafter Leyland) in view of Horton, US 3,817,172 A (hereinafter Horton).

a. Regarding claims 1 and 14:

Leyland teaches a plastic surface printing method comprising: providing a metallic hot-stamping tool (16, Fig. 1) with a stamping surface using a heating device ("heated die 16," col. 2, l. 46), preheating a work piece surface (12, Fig. 1) to be printed (heat generated by the cartridge heater 44 is transferred to the peripheral surface of the plastics odometer wheels 12," col. 3, ll. 48-50); and using the stamping surface to press a carrier foil (24, Fig. 1) against a surface of the work piece such that a pigment layer is transferred from the carrier foil onto the work piece ("the pigment on the printing tape 24 is transferred from the printing tape to the peripheral surface of the plastics odometer wheel to print the numbers thereon," col. 3, ll. 20-22) wherein the stamping surface is preheated to a temperature of between 140 °C and 240 °C ("heated die 16 normally operates at temperatures in excess of 200 °C, and is usually set to operate at a temperature between 260 °C and 300 °C," col. 1, ll. 53-56).

Leyland does not teach a metallic hot-stamping tool with a plastic-coated outer stamping surface.

Horton teaches a metallic hot-stamping tool with a plastic-coated outer stamping surface (2, 1; "the flexible resilient die portion is preferably formed of a high-temperature resistant silicone rubber material," col. 1, ll. 45-47). The rubber surface allows the die to conform to the surface to be printed (col. 1, ll. 19-25).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Leyland to include a plastic-coated outer stamping surface as taught by Horton, because this would allow to the die to conform to the surface of the article to be printed.

b. Regarding claim 2, the combination of Leyland and Horton teaches the method according to claim 1 as discussed in the rejection of claim 1 above. The combination of Leyland and Horton also teaches wherein preheating the work piece surface comprises adapting a heating power of the heating device in response to a texture of the surface to be printed (Leyland: the "texture" of the surface will dictate how much power is required for heater 44 to heat the work piece to the desired temperature).

c. Regarding claim 5:

The combination of Leyland and Horton teaches the method according to claim 1 as discussed in the rejection of claim 1 above. The combination of Leyland and Horton also teaches wherein work piece surface is heated to a temperature of about 30 °C. Leyland also teaches that the work piece is preferably "above room temperature" (col. 3, ll. 65-66) and that there is a relationship between the

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temperature of the work piece, the print quality, and the printing speed (col. 4, ll. 1-21).

The combination of Leyland and Horton does not teach wherein the work piece surface is heated to a temperature between 3 °C and 25 °C.

It has been held that routine experimentation is not sufficient to patentably distinguish an invention over the prior art. See MPEP § 2144.05.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Leyland wherein the work piece surface is heated to a temperature between 3 °C and 25 °C, because one having ordinary skill in the art could easily determine this is the optimum temperature range through routine experimentation, taking into account the overall results of the method based on factors including temperature of the work piece, production speed, and production quality.

d. Regarding claims 6 and 18:

The combination of Leyland and Horton teaches the method according to claim 1 as discussed in the rejection of claims 1 and 14 above. The combination of Leyland and Horton also teaches wherein work piece surface is heated to a temperature of about 30 °C, and between 40 °C and 60 °C. Leyland also teaches that the work piece is preferably "above room temperature" (col. 3, ll. 65-66) and that there is a relationship between the temperature of the work piece, the print quality, and the printing speed (col. 4, ll. 1-21).

The combination of Leyland and Horton does not teach wherein the work piece surface is heated to a temperature between 80 °C and 120 °C.

It has been held that routine experimentation is not sufficient to patentably distinguish an invention over the prior art. See MPEP § 2144.05.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Leyland wherein the work piece surface is heated to a temperature between 80 °C and 120 °C, because one having ordinary skill in the art could easily determine this is the optimum temperature range through routine experimentation, taking into account the overall results of the method based on factors including temperature of the work piece, production speed, and production quality.

e. Regarding claims 7 and 8:

The combination of Leyland and Horton teaches the method according to claim 1 as discussed in the rejection of claim 1 above. The combination of Leyland and Horton also teaches wherein work piece is "any suitable plastics material " (col. 4, l. 38).

The combination of Leyland and Horton does not teach wherein the preheated work piece surface comprises a surface of a plastic toothbrush.

One having ordinary skill in the art would be familiar with various dental hygiene instruments, including toothbrushes, which are commonly made from plastics materials.



It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Leyland wherein the plastics material of the work piece was in the form of a toothbrush made from a thermoplastic plastic, because one having ordinary skill in the art would recognize that a toothbrush is a plastics material suitable for use in the method taught by the combination of Leyland and Horton.

f. Regarding claim 10, the combination of Leyland and Horton teaches the method according to claim 1 as discussed in the rejection of claim 1 above. The combination of Leyland and Horton also teaches wherein the hot-stamping tool is coated with a silicon layer (Horton: "the flexible resilient die portion is preferably formed of a high-temperature resistant silicone rubber material," col. 1, ll. 45-47).

g. Regarding claims 11, 12, and 19, the combination of Leyland and Horton teaches the method according to claims 1 and 14 as discussed in the rejection of claims 1 and 14 above. The combination of Leyland and Horton also teaches wherein the silicone layer has a thickness between 2 and 3 mm (Horton: "the die is 0.75 to 3 mm thick," col. 4, l. 25).

h. Regarding claims 13 and 20, the combination of Leyland and Horton teaches the method according to claims 1 and 14 as discussed in the rejection of claims 1 and 14 above. The combination of Leyland and Horton also teaches wherein the stamping surface is preheated to a temperature between 200 °C and 220 °C (Leyland: "heated die 16 normally operates at temperatures in excess of 200 °C, and

is usually set to operate at a temperature between 260 °C and 300 °C,” col. 1, ll. 53-56).

6. Claims 3, 9, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leyland in view of Horton as applied to claims 2 and 14 above, and further in view of Hall, US 2,763,893 A (hereinafter Hall).

a. Regarding claim 15:

The combination of Leyland and Horton teaches the method according to claim 14 as discussed in the rejection of claim 14 above. The combination of Leyland and Horton also teaches wherein preheating the work piece surface comprises adapting a heating power of the heating device in response to a texture of the surface to be printed (Leyland: the “texture” of the surface will dictate how much power is required for heater 44 to heat the work piece to the desired temperature).

The combination of Leyland and Horton does not teach wherein the texture is sensed.

Hall teaches sensing the temperature of a piece to be embossed/stamped with a pyrometer, and controlling the temperature of the work piece based on the sensed temperature (col. 4, ll. 16-30).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify Leyland wherein the texture is sensed with a pyrometer, because one having ordinary skill in the art could easily combine the known prior art techniques to provide the method of Leyland with sensing and

control of the work piece temperature, thereby allowing precise temperature control of the work piece which may enhance the results and speed of the process.

b. Regarding claims 3 and 16:

The combination of Leyland and Horton teaches the method according to claims 2 and 15 as discussed in the rejection of claims 2 and 15 above. The combination of Leyland and Horton also teaches

The combination of Leyland and Horton does not teach wherein adapting the heating power comprises: sensing the texture of the surface to be printed by means of a sensor; and forwarding data indicative of the sensed texture to an evaluation device that subsequently adjusts the heating power of the heating device

Hall teaches sensing the temperature of a piece to be embossed/stamped with a pyrometer, and controlling the temperature of the work piece based on the sensed temperature (col. 4, ll. 16-30).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify Leyland wherein the texture is sensed with a pyrometer, because one having ordinary skill in the art could easily combine the known prior art techniques to provide the method of Leyland with sensing and control of the work piece temperature, as taught by Hall, thereby allowing precise temperature control of the work piece which may enhance the results and speed of the process.

c. Regarding claim 9, the combination of Leyland, Horton and Hall teaches the method according to claim 3 as discussed in the rejection of claim 3 above. The

combination of Leyland, Horton and Hall also teaches wherein the texture is sensed by a pyrometer (Hall: pyrometer 34, col. 4, l. 16).

7. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leyland in view of Horton as applied to claims 1 and 14 above, and further in view of Colledge, US 3,791,290 A (hereinafter Colledge).

a. Regarding claims 4 and 17:

The combination of Leyland and Horton teaches the method according to claims 1 and 14 as discussed in the rejection of claims 1 and 14 above. The combination of Leyland and Horton also teaches wherein the work piece heater is a cartridge heater (Leyland: 44, Fig. 3).

The combination of Leyland and Horton does not teach wherein preheating the work piece surface is heated by means of an infrared lamp or a fan heater.

Colledge teaches a heating means for a work piece that is either an electric resistance coil or an infra-red lamp (col. 1, ll. 33-34).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify Leyland to substitute an infrared heater for the electric heater, because Colledge teaches that these are known equivalents, and one having ordinary skill in the art may find more flexibility in using an IR heater that does not need to touch the work piece to heat it.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leo T. Hinze whose telephone number is 571.272.2864. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571.272.2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Judy Nguyen/

Supervisory Patent Examiner, Art Unit 2854

Leo T. Hinze  
Patent Examiner  
AU 2854  
28 March 2008